12. Metropolitan Domestic Water Improvement District (MDWID)

The MDWID service area covers approximately 18 square miles. The population in 1998 was 44,952, with a water production of 8,735af. In general, the service area is bounded by Oracle Road and First Avenue on the east, Thornydale Road on the west, Sunset Road on the south, and Lambert Lane on the north. The existing MDWID water system is comprised of 21 relatively small service areas that are served by one or more wells and generally operate independently. MDWID currently pumps groundwater for its entire water supply from 29 active wells. The recovery capacity of the well system is approximately 18,000 gpm, or about 29,000 afa. The distribution system consists of over 292 miles of pipelines varying in size from two inches to 24 inches in diameter.

In 1998, more than 70 percent of the deliveries were to single family residences. About 13 percent of the deliveries were to apartments. The remaining deliveries were made to nonresidential customers which include schools, medical facilities, shopping areas, offices, restaurants, turf irrigation, and a park (ADWR 1999). According to the ADWR Annual Water Withdrawal and Use Report, in the MDWID service area in 1998, a total of 8,773 af of groundwater were pumped and delivered and 22 af of groundwater were received or diverted from other sources. Of the total 8,795 af of water produced and delivered, 58 af were delivered to other users, leaving a balance of 8,737 af to be delivered with the MDWID service area.

A. Plans to Take and Use CAP Water

The MDWID service area currently has a contract for 8,858 af of CAP water. Under the Settlement Alternative, the MDWID would receive 4,602 af of CAP water through the First Trust of Arizona, but has not yet taken delivery of any CAP water. That CAP water would be delivered for a 50-year contract period (i.e., from 2001-2051). The CAP water would be used to supplement both current and projected water supply demands over the next 50 years and would help reduce the continuing dependence on pumping groundwater from an overdrafted groundwater system. Table L-M&I-69 outlines the proposed allocations by alternative.

Table L-M&I-69 CAP Allocation Draft EIS Appendix L MDWID – Proposed CAP Allocation		
Alternative	**Allocation (in afa)**	**Priority**
Settlement Alternative	4,602	M&I
No Action	0	-
Non-Settlement Alternative 1	4,602	M&I
Non-Settlement Alternative 2	0	-
Non-Settlement Alternative 3A	0	-
Non-Settlement Alternative 3B	5,034	NIA
Existing CAP Allocation	8,858	-

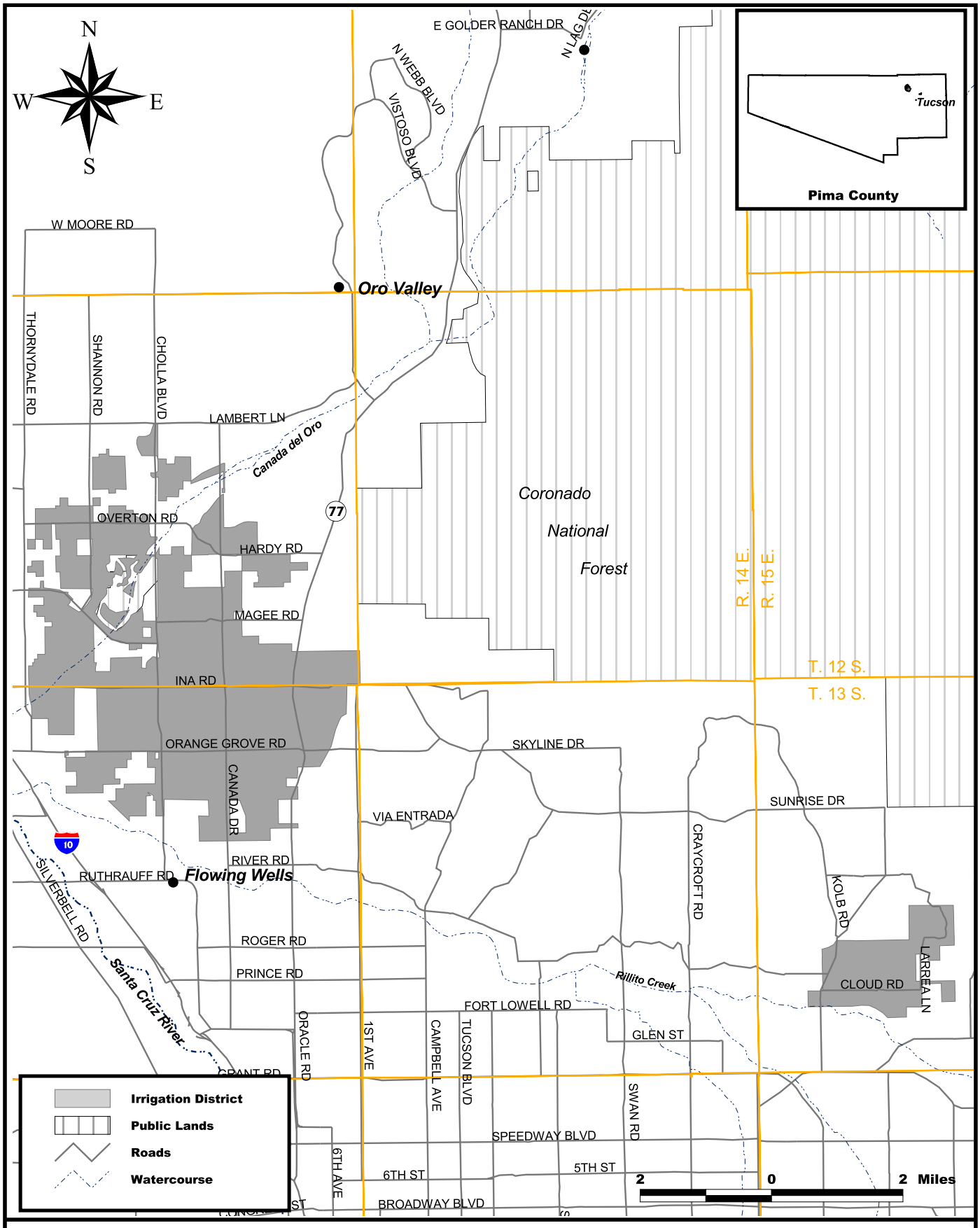
Figure L-M&I-35 shows the service area for the MDWID, which covers approximately 11,338 acres. The MDWID currently recharges a portion of its CAP allocation directly at the AVRA Valley recharge facility and indirectly with the Cortaro-Marana Irrigation District (CMID) and Kai Farms. Recovery is through existing wells within the MDWID service area. Future plans may include direct recharge in the Cañada del Oro Wash and/or treatment and direct delivery (Tenney 2000).

B. Population Projection

The estimated 2001 population level for the MDWID service area is 47,750 and the estimated 2051 population level is 103,451.

C. Water Demand and Supply Quantities

As previously shown in Appendix C–M&I Sector Water Uses, it is estimated that water demand in the MDWID service area would increase from 8,985 af in year 2001 to 19,467 af in year 2051. The projected water uses both by water source and alternatives are provided below in Table L-M&I-70. Based on anticipated water demands, CAP water which would be allocated under the Settlement Alternative would provide 51 percent to 24 percent of the current estimated water supply required for the MDWID service area for the years 2001 and 2051, respectively.



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CAP Allocation Draft EIS
General Location Map
Metropolitan Domestic Water Improvement District

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Figure #L-M&I-35

Table L-M&I-70 CAP Allocation Draft EIS MDWID– Projected Water Use										
Alternative	**Annual CAP Deliveries**		**Groundwater**		**Effluent**		**CAGRD (Groundwater)**		**Total Demand**	
	2001	**2051**	**2001**	**2051**	**2001**	**2051**	**2001**	**2051**	**2001**	**2051**
Settlement Alternative	0	13,460	8,985	0	0	0	0	6,007	8,985	19,467
No Action	0	8,858	8,858	0	0	0	127	10,609	8,985	19,467
Non-Settlement Alternative 1	0	13,460	8,985	0	0	0	0	6,007	8,985	19,467
Non-Settlement Alternative 2	0	8,858	8,858	0	0	0	127	10,609	8,985	19,467
Non-Settlement Alternative 3A	0	8,858	8,858	0	0	0	127	10,609	8,985	19,467
Non-Settlement Alternative 3B	0	13,460	8,985	0	0	0	0	6,007	8,985	19,467
Note: A more detailed breakdown of supplies may be found in Appendix C.										

It is estimated that the demand for water at the end of the CAP contract period would be approximately 19,467 af. For all alternatives, there is estimated to be no unmet demand. In the Settlement Alternative, Non-Settlement Alternative 1 and 3B, 4,602 afa of demand are met by the additional CAP allocation. Alternatively, this 4,602 afa of demand are met by CAGRD membership under the No Action Alternative and Non-Settlement Alternative 2 and 3A.

D. Environmental Effects

The following sections include a general description of existing conditions relating to land use, water resources and socioeconomics for each entity. The following summaries also include a description of the existing conditions and brief description of the impacts to biological and cultural resources that would result from construction of CAP delivery facilities and conversion of desert and agricultural lands to urban uses.

1. Land Use

Land use data for the MDWID service area were obtained based upon the review of 1998 aerial photographs and the result of the field surveys and habitat mapping completed as part of the biological analysis in this EIS. Table L-M&I-71 provides the projected acres of land within the MDWID service area that are agriculture, desert or urban and the number of acres expected to change from the existing category for the years 2001 and 2051.

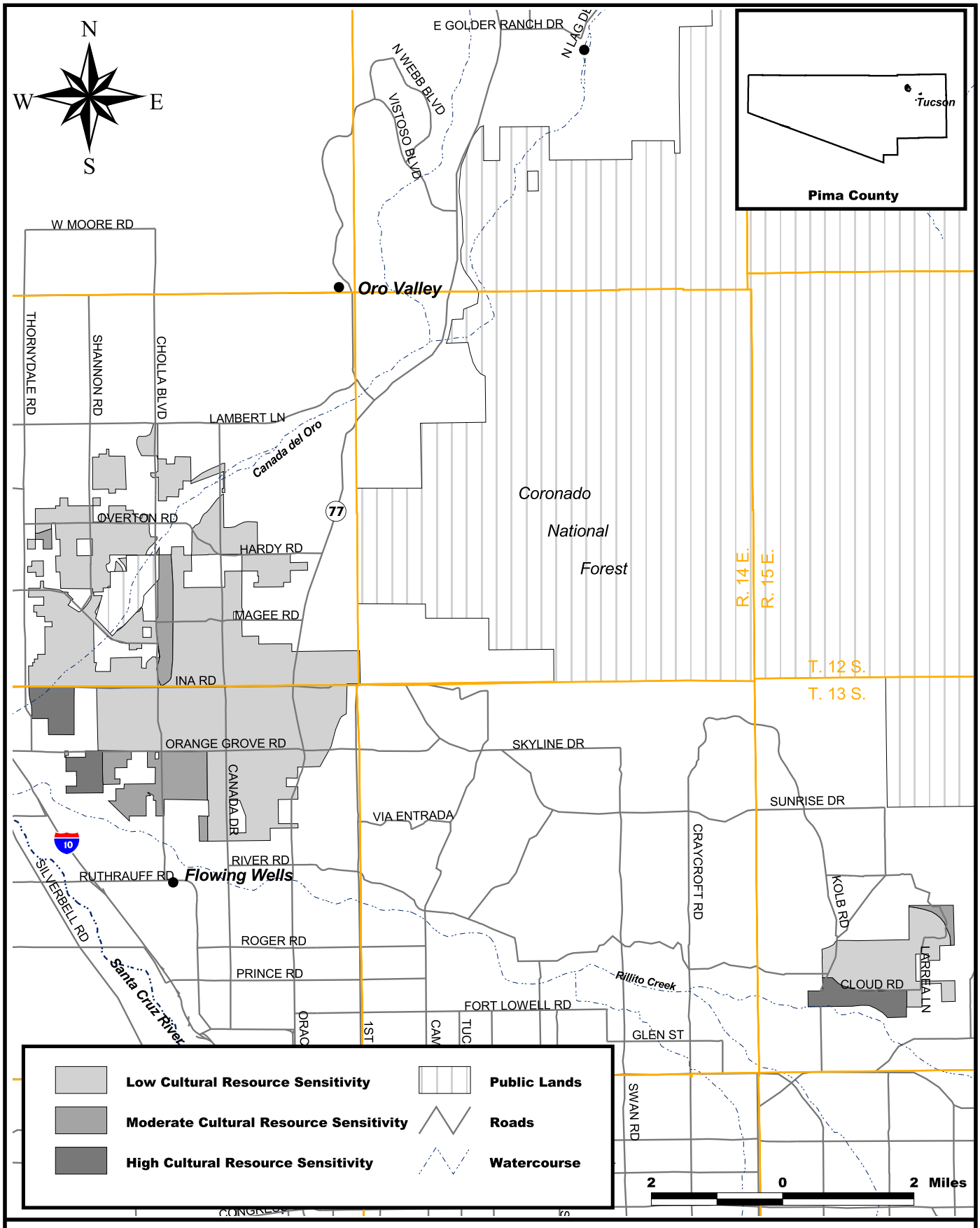
TableL-M&I-71
CAP Allocation Draft EIS Appendix L
MDWID– Projected Land Use Changes Within the Service Area (in acres)

Alternative	Year	Agriculture	Agriculture Urbanized	Desert	Desert Urbanized	Urban	Changes in Urban Acreage
Settlement Alternative	2001	0	--	833	--	10,505	--
	2051	0	0	0	833	11,338	833
No Action	2001	0	--	833	--	10,505	--
	2051	0	0	0	833	11,338	833
Non-Settlement Alternative 1	2001	0	--	833	--	10,505	--
	2051	0	0	0	833	11,338	833
Non-Settlement Alternative 2	2001	0	--	833	--	10,505	--
	2051	0	0	0	833	11,338	833
Non-Settlement Alternative 3A	2001	0	--	833	--	10,505	--
	2051	0	0	0	833	11,338	833
Non-Settlement Alternative 3B	2001	0	--	833	--	10,505	--
	2051	0	0	0	833	11,338	833

2. Archaeological Resources

Much of the MDWID service area has been block-surveyed; numerous linear surveys also have taken place, particularly along Interstate 10 and west of the Santa Cruz River. In the easternmost portion of the service area, sites have been recorded along the banks of Tanque Verde Creek, Sabino Creek, and Ventana Canyon Wash. Fewer surface manifestations have been recorded to the west, probably as a result of urban development. Significant cultural resources—including Archaic and Hohokam artifact scatters, Hohokam villages, and resource-processing loci—also have been documented in the southwest portion of the service area. This landscape, dissected by numerous washes that drain out of the Tortolita Mountains, has a high potential for containing prehistoric sites. Protohistoric Papago and Pima sites also might be expected. Historic trails, roads, railroads, and other transportation-related features are common throughout the service area, as are sites related to commerce, mining, farming, ranching, and other historic activities.

Cultural resource sensitivity areas in the MDWID service area are shown on Figure L-M&I-36. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in the MDWID service area is low to moderate. Mitigation of cultural resource impacts due to urban expansion would be determined by local jurisdictions and development of applicable permit requirements (such as the CWA Section 404 permit). Impacts on cultural resources due to future land use changes would be identical for each of the five alternatives. Mitigation for such impacts would be dependent on the requirements of the local jurisdiction. Once the plans for taking delivery



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CAP Allocation Draft EIS
Cultural Resources
Metropolitan Domestic Water Improvement District

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Figure #L-M&I-36

of CAP water are finalized, Reclamation would carry out additional cultural resources compliance as appropriate, prior to water delivery.

3. Biological Resources

Existing Habitats

Little natural habitat remains within the MDWID service area. Nearly all of the area has been developed for urban use. It is located in an area that was probably transitional between Bursage/Foothills Paloverde and Creosote-Bush Associations. The habitat zones are shown on Figure L-M&I-37. Table L-M&I-72 provides the habitat acreages for the habitat zones described above.

TableL-M&I-72
CAP Allocation Draft EIS
MDWID– Habitat Acreages

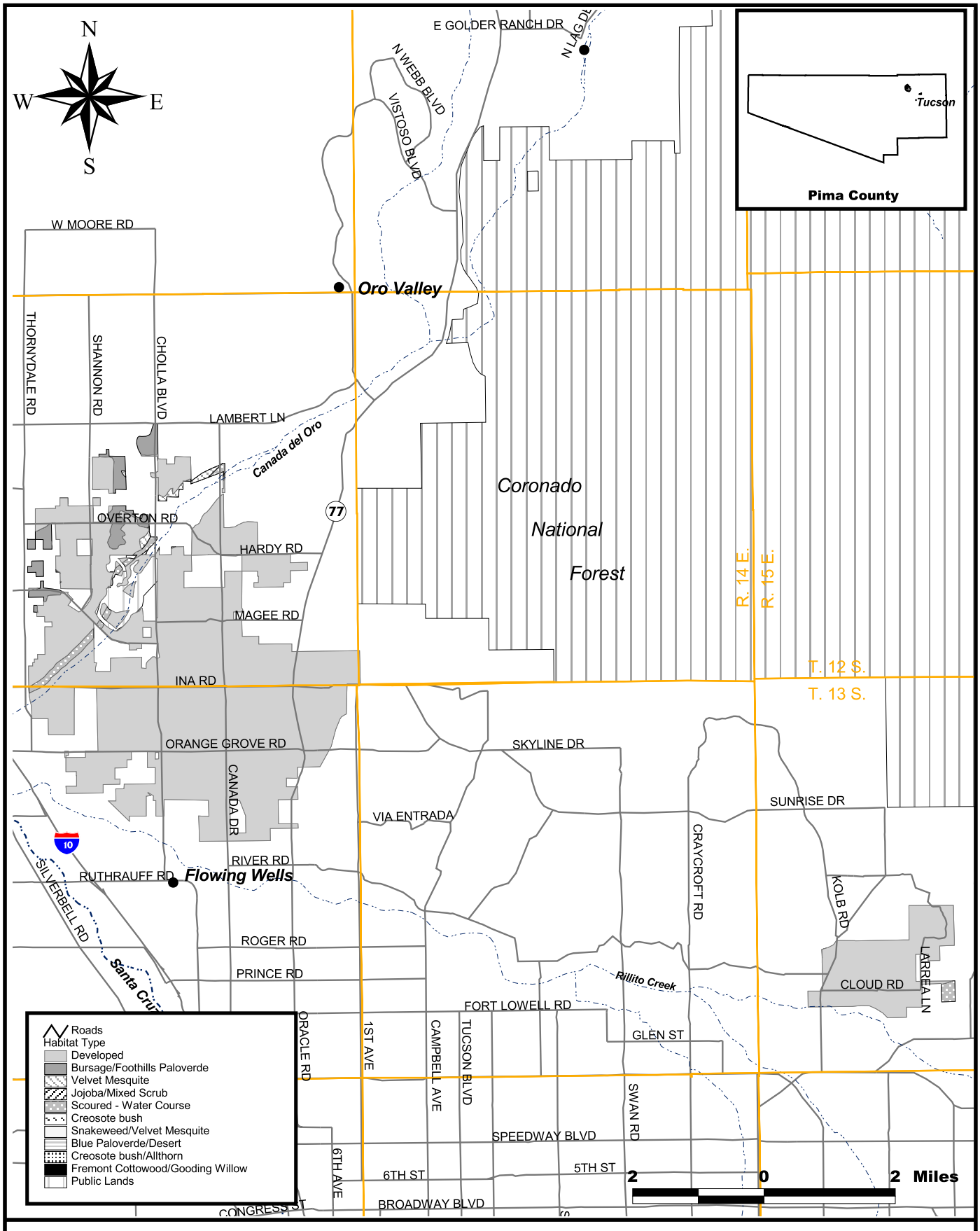
Vegetation Name	Acres
Developed	10,505
Bursage/Foothills Paloverde	584
Velvet Mesquite	62
Scoured, Washes and Creeks	187
Total	**11,338**

Impacts to Biological Resources

Under the No Action Alternative, urban growth within this service area would result in loss of an estimated 833 acres of Sonoran Desertscrub and associated wildlife resources. Under the action alternatives, there is no difference in impacts from the No Action baseline. With regard to construction of CAP delivery facilities, Reclamation would carry out additional environmental review once plans are developed.

Potential T&E Species and Acres of Potential T&E Species Habitat

Because the allocation of CAP water has no effect on urban growth, there would be no effect on T&E species from the CAP allocation. The appropriate municipal or local governmental jurisdiction would be responsible for complying with the relevant provisions of the ESA as it permits and approves future urban growth. This service area is located within Pima County for which there are 16 T&E species listed by USFWS. However, potential habitat exists only for cactus ferruginous pygmy-owl. Approximately 645 acres of potentially suitable habitat were identified for the cactus ferruginous pygmy-owl within the MDWID service area.



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CAP Allocation Draft EIS
Habitat Zones
Metropolitan Domestic Water Improvement District

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Figure No. L-M&I-37

4. Water Resources

Demands in MDWID have historically been met primarily by pumping groundwater from the underlying sedimentary rocks. This reliance on groundwater has resulted in declining groundwater levels over time, and there has been subsidence associated with these lower groundwater levels. The concentration of TDS in the underlying groundwater is generally 1,000 ppm.

Estimated groundwater level impacts are summarized in Table L-M&I-73, which shows the estimated groundwater level change for the period from 2001-2051 as well as the groundwater level impacts or the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative. Most of MDWID was contained in two groundwater sub-areas. The first number shown in Table L-M&I-73 represents groundwater levels for the eastern part of MDWID, and the second number represents the western part of MDWID. Declines in groundwater levels and groundwater impacts are similar in both the eastern and western part of MDWID.

Under the No Action Alternative, groundwater levels would decline by as much as about 100 feet from 2001 to 2051. A portion of the CAP water available to MDWID would be directly delivered, while a portion would be recharged in direct recharge facilities. The CAP water (and particularly the water directly delivered) tends to improve groundwater levels, but the continued decline in groundwater levels results from increased demands over time that would be met by increased local groundwater pumping. Substantial changes in groundwater quality would not be anticipated. However, there would be the potential for subsidence due to the lower groundwater levels.

Groundwater levels would also decline for all of the action alternatives. However, these declines would be substantially smaller than under the No Action Alternative for the Settlement Alternative and Non-Settlement Alternatives 1 and 3B, reflecting the additional allocation of CAP water received under those alternatives. For Non-Settlement Alternatives 2 and 3A, MDWID would not receive an additional allocation of CAP water, and the groundwater levels would be similar to the No Action Alternative.

Substantial changes in groundwater quality would not be anticipated for any of the alternatives. However, there would be the potential for subsidence under all alternatives.

Table L-M&I-73 CAP Allocation Draft EIS MDWID–Groundwater Data Table		
Alternatives	**MDWID***	
	Estimated Groundwater Level Change from 2001-2051 (in Feet)	**Groundwater Level Impact**(in Feet)**
No Action	-99 / -88	--
Settlement Alternative	-62 / -59	37 / 30
Non-Settlement Alternative 1	-67 / -62	32 / 27
Non-Settlement Alternative 2	-97 / -90	2 / -1
Non-Settlement Alternative 3A	-98 / -90	2 / -1
Non-Settlement Alternative 3B	-64 / -61	36 / 28
*Values correspond to MDWID and East CMID sub-areas, respectively, as discussed in Appendix I. ** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.		

5. Socioeconomic

The same population growth is supported under all alternatives, including the No Action Alternative. However, the cost of providing water may vary by alternative. Costs were estimated, on a per af basis, for providing the proposed allocations and, in their absence, alternative water supplies. The alternative water supplies include joining the CAGRD and, if needed, treating and reusing effluent. The difference in cost for this small increment of MDWID's total water supply is considered insignificant. It should be noted that the increment of demand met by the proposed CAP allocation is approximately 23.6 percent of the total year 2051 demand for the MDWID.

Table L-M&I-74
CAP Allocation Draft EIS
MDWID–Cost of Potable Water for Additional Allocation Increment

Alternative	Cost of Water ($ per af)	Water Source
Settlement Alternative	154[a]	CAP Allocation
No Action	226 – 231[b]	CAGRD
Non-Settlement Alternative 1	154[a]	CAP Allocation
Non-Settlement Alternative 2	226 – 231[b]	CAGRD
Non-Settlement Alternative 3A	226 – 231[b]	CAGRD
Non-Settlement Alternative 3B	154[a]	CAP Allocation

Notes:
a. Estimated average unit cost in year 2000 dollars.
b. Estimated range of unit costs in year 2000 dollars. Range is due to estimated change in groundwater pumping lifts during study period and does not include wellhead treatment costs.